

A logic identifying isomorphic propositions

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The paper has been withdrawn since we have found an error in the proof of strong normalisation and a counter-example for such a property:

Let

$$\begin{aligned}y &: \tau \\z &: \tau \Rightarrow \tau \Rightarrow \tau \\ \delta &= \lambda x^\tau. \pi_{\tau \Rightarrow \tau}((zy) \times x)x : \tau \Rightarrow \tau \\ \Omega &= \delta(\delta y)\end{aligned}$$

Then

$$\begin{aligned}\Omega &\hookrightarrow \pi_{\tau \Rightarrow \tau}((zy) \times (\delta y))(\delta y) \\ &\hookrightarrow \pi_{\tau \Rightarrow \tau}((z \times \delta)y)(\delta y) \\ &\hookrightarrow \pi_{\tau \Rightarrow \tau \Rightarrow \tau}(z \times \delta)y(\delta y) \\ &\hookrightarrow \pi_{\tau \Rightarrow \tau \Rightarrow \tau}(z \times \delta)(\delta y)y \\ &\hookrightarrow \pi_{\tau \Rightarrow \tau}((z \times \delta)(\delta y))y \\ &\hookrightarrow \pi_{\tau \Rightarrow \tau}((z(\delta y) \times \Omega)y)\end{aligned}$$